Los Angeles River - The Unpredictable!

For centuries, the Los Angeles River has been prone to flooding during periods of heavy rain yet could be transformed to just a trickle and even marshlands during the rest of the year.

Historical references indicate that the river changed courses on numerous occasions, due to heavy floods, across the large alluvial plain, which makes up present-day Los Angeles and Orange counties. Although Los Angeles is typically a dry area, receiving an average of rainfall of 15 inches per year (and much less during drought years), the surrounding mountain ranges can at times receive upwards of 40 inches of rain per year. Gravity then takes over and the millions of gallons of water fall from headwater elevations of nearly 1,000 feet to zero feet above sea level in just 50 miles. This creates the perfect recipe for flash floods during the winter months when precipitation in the area is most common.

(Early 1900s) – View shows mud and erosion on the banks near Griffith Park, caused by the flood waters from the Los Angeles River.

From the DWP Historical Archives

She has changed her name, often has she changed her course, and many times has she changed the topography of the land she flows through.

The first mention of our river by the white man is found in Fray Juan Crespi's diary under the date of August 2, 1769. Fray Crespi was the diarist for the famed Portolá expedition that left San Diego, the first white settlement in California, July 14, 1769.

The expedition wended its way north by land to establish a settlement upon Viscaino's Bay of Monterey, discovered but not settled 160 years previously. Nor did Portolá settle or find Monterey Bay, but went past its latitude and discovered San Francisco Bay.

After a weary march north from San Diego, Don Gaspar de Portolá's party, consisting of 64 men, which included 27 leather-jacketed soldiers (soldados de cuera) under Rivera y Moncada, and six Catalan volunteers under Pedro Fages, with the Franciscan Father Crespi to record events, arrived on August 1 in the Arroyo Seco, about where Sycamore Grove is today. There they camped for the night.

The following morning, the march had resumed for about a league and a half when they came upon a beautiful river, where, due to its being August 2, the day for the great Indulgence of Our Lady of Los Angeles de Porciúncula, they stopped for the day that every man might receive the Atonement, and named the river Porciúncula. This was our Los Angeles River, and the spot they camped on was about where Broadway crossed the river today.

Since the entry in Fray Crespi's diary is descriptive as well as highly prophetic, a quotation of the day's entry is merited, as it is the first description ever given of the river or of the Los Angeles district:

Wednesday, August 2, 1769. We set out from the valley in the morning and followed the same plain in a westerly direction. After traveling about a league and a half through a pass between low hills, we entered a very spacious valley, well grown with cottonwoods and alders, among which ran a beautiful river from north northwest, and then doubling the point of the steep hill, it went on afterwards to the south. Towards the north northeast there is

another river bed which forms a spacious water course, but we found it dry. (Arroyo Seco) This bed unites with that of the river, giving clear indication of great floods in the rainy season, for we saw that it had many trunks of trees on the banks. We halted not very far from the river, which we named Porciúncula. Here we felt three consecutive earthquakes in the afternoon and night. We must have traveled about three leagues today. This plan where the river runs is very extensive. It has good land for planting all kinds of grain and seeds, and it's the most suitable site of all we have seen for a mission, for it has all the requisites for a large settlement.

Little did he realize how "large" a "settlement" would one day be here. But he continues:

August 3. At half past six we left the camp and followed the Porciúncula River which runs down the valley, flowing through it from the mountains into the plain. After crossing the river we entered a large vineyard of wild grapes and infinity of rose bushes in full bloom. Fray Crespi's report was undoubtedly the reason for the founding of the Pueblo de Nuestra Senora la Reina de Los Angeles, 12 year later, on the Rio Porciúncula, September 4, 1781. The first settlers immediately tapped the river with the Zanja Madre, and from that day on white men watched the moods of the Los Angeles River, wondering what new quirk she would take, and when.

According to the early Spanish records, our river behaved herself pretty well for the first 30 years or more of the life of the town. Through rains were often heavy, the growth of willow thickets in the river bottom from well into San Fernando Valley down to and beyond the lower limits of the pueblo tended to check its flow short of flood proportions.

The year 1815, however, was one never to be forgotten in the pueblo. **Due to the heavy and continuous rains (10 days and 10 nights without intermission),** ***the river overflowed and changed its bed for the next ten years*****. The river moved over nearer the Plaza, running along the present North Spring Street (old San Fernando Street) to Alameda and down that thoroughfare to about First and Los Angeles Streets, down Los Angeles to Ninth Street, then west to Figueroa and down Figueroa into the Cienegas, toward where the Marina and Playa del Rey are located today.**

The Plaza was flooded to a depth of several inches, and the old Indian village of Yang Na that had stood for centuries was a sea of floating wickiups.

This flood not only changed the course of the river for a decade but also changed the location of the Plaza, which then stood about a block and a half northwest of the present Plaza. Governor Sola, in 1818, selected a location on higher ground and the Plaza was moved to its present site.

Another great flood in 1825 carried the Rio de Los Angeles back to its former and present bed **and changed its outlet to the sea from its temporary course through the Cienegas toward Ballena Rancho (Ballona as it was more commonly called) to its present course to San Pedro Bay.**

This flood drained the marshlands between the pueblo and San Pedro, and caused the forests of sycamores and oaks, then growing abundantly, to disappear.

Besides cutting a definite channel to tidewater, the flood caused a union of our river with the San Gabriel River, just north of Cerritos Rancho, and they flowed together into San Pedro Bay until 1867, when the San Gabriel formed a new channel into Alamitos Bay.

In 1832, floods changed the drainage around the Compton district and dried up the few remaining lagoons. From then until the American occupation, the Los Angeles River behaved itself pretty well.

Click HERE to see more in Water in Early Los Angeles.

(Early 1900s) View of the Los Angeles River looking north from Los Feliz.

Historical Notes

Originally an alluvial river that ran freely across a flood plain, the Los Angeles River's 51-mile path was unstable and unpredictable with the mouth of the river moving frequently from one place to the other.

(ca. 1930s) - View of a very dry Los Angeles River. The Fourth Street Bridge is seen in the background. Photo was taken prior the cement lining and channelization that took place post 1938.

1938 Los Angeles Flood

(1938) - Aerial photograph of the confluence of the Los Angeles River and the Central Branch Tujunga Wash and surrounding area, March 3, 1938 during the 1938 Los Angeles River flood. Note both rivers are spilling over their banks and a portion of Vineland Avenue has been washed away (lower left).

Historical Notes

There have been eight major floods in the Valley since 1861, but the 1938 Los Angeles River flood was one of the worst. The rains lasted for 3 days and the Big Tujunga Wash levee broke. Seventy-seven of its spreading basins were destroyed. Telephones and electrical power was shut down. Buildings on the Warner Bros. lot and Olive Avenue Bridge were washed out. It took 30 days to clean up the storm debris.

(1938) - Aerial view of the Lankershim Bridge in Universal City, that was destroyed by flood waters. People gathered at the ends of the bridge to watch the waters rage past the now destroyed bridge.

Historical Notes

Between February 27 and 28, 1938, a storm from the Pacific Ocean moved inland into the Los Angeles Basin, running eastward into the San Gabriel Mountains. The area received almost constant rain totaling 4.4 inches from February 27-March 1. This caused minor flooding that affected only a few buildings in isolated canyons and some low-lying areas along rivers.

Fifteen hours later on March 1, at approximately 8:45 PM, a second storm hit the area, creating gale-force winds along the coast and pouring down even more rain. The storm brought rainfall totals to 10 inches in the lowlands

and upwards of 32 inches in the mountains. When the storm ended on March 3, the resulting damage was huge -- 115 lives were lost.

(1938) - Flooded area at Ventura Boulevard and Colfax Avenue in Studio City. Not visible is the Republic Studios lot, just to the left of the water.

Historical Notes

The 1938 flood destroyed 5,601 homes and businesses, and damaged a further 1500 properties. The flooding was accompanied by massive debris flows of mud, boulders and downed trees which surged out of the foothill canyons. Transport and communication were cut off for many days as roads and railroads were buried, and

power, gas and communication lines were cut. Dozens of bridges were destroyed, either by the sheer erosive force of floodwaters or by the collision of floating buildings and other wreckage.

Some communities were buried as much as 6 feet deep in sand and sediment, requiring a massive clean-up effort afterward. It took from two days to a week to restore highway service to most impacted areas. The Pacific Electric rail system serving Los Angeles, Orange, San Bernardino and Riverside Counties was out of service for three weeks.*^

(1938) - Close-up view showing the washed-out bridge at Colfax Avenue over the Los Angeles River in Studio City.

Historical Notes

About 108,000 acres were flooded in Los Angeles County, with the worst hit area being the San Fernando Valley, where many communities had been built during the economic boom of the 1920s in low-lying areas once used for agriculture.

(1938) - Aerial view showing the devastation when the LA River overflowed its banks. The above photo is labeled "North Hollywood," but the area shown is actually the southwest portion of Glendale. This is the area where Glendale, Burbank, and the City of Los Angeles all come together. Riverside Drive runs from center-left to lower-right corner. The street that ends at the river is Western Avenue. Click HERE for contemporary aerial view.

Historical Notes

Many properties were located in old river beds that had not seen flooding in some years.

(1938) - Caption reads: "Flooding in Southern California killed dozens". This bus became stuck at 43rd Place near Leimert Boulevard.

Historical Notes

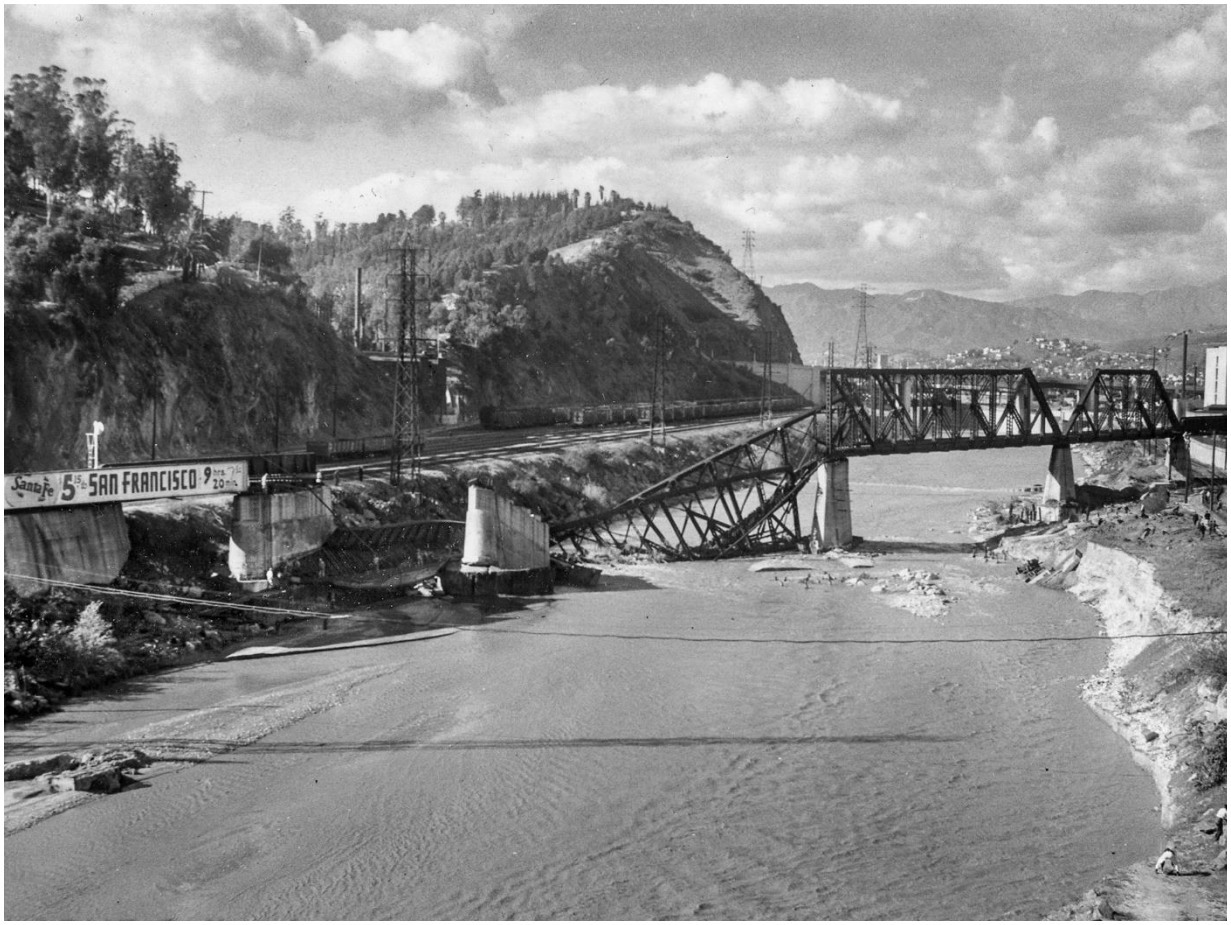
Swollen by its flooded tributaries, the Los Angeles River reached a maximum flood stage of about 99,000 cubic feet per second. The water surged south, inundating Compton before reaching Long Beach, where a bridge at the mouth of the river collapsed killing ten people.

(1938) - People walk along a cement path that seems to have snapped in half as the dirt below the concrete washed away in the flooded Los Angeles River.

Historical Notes

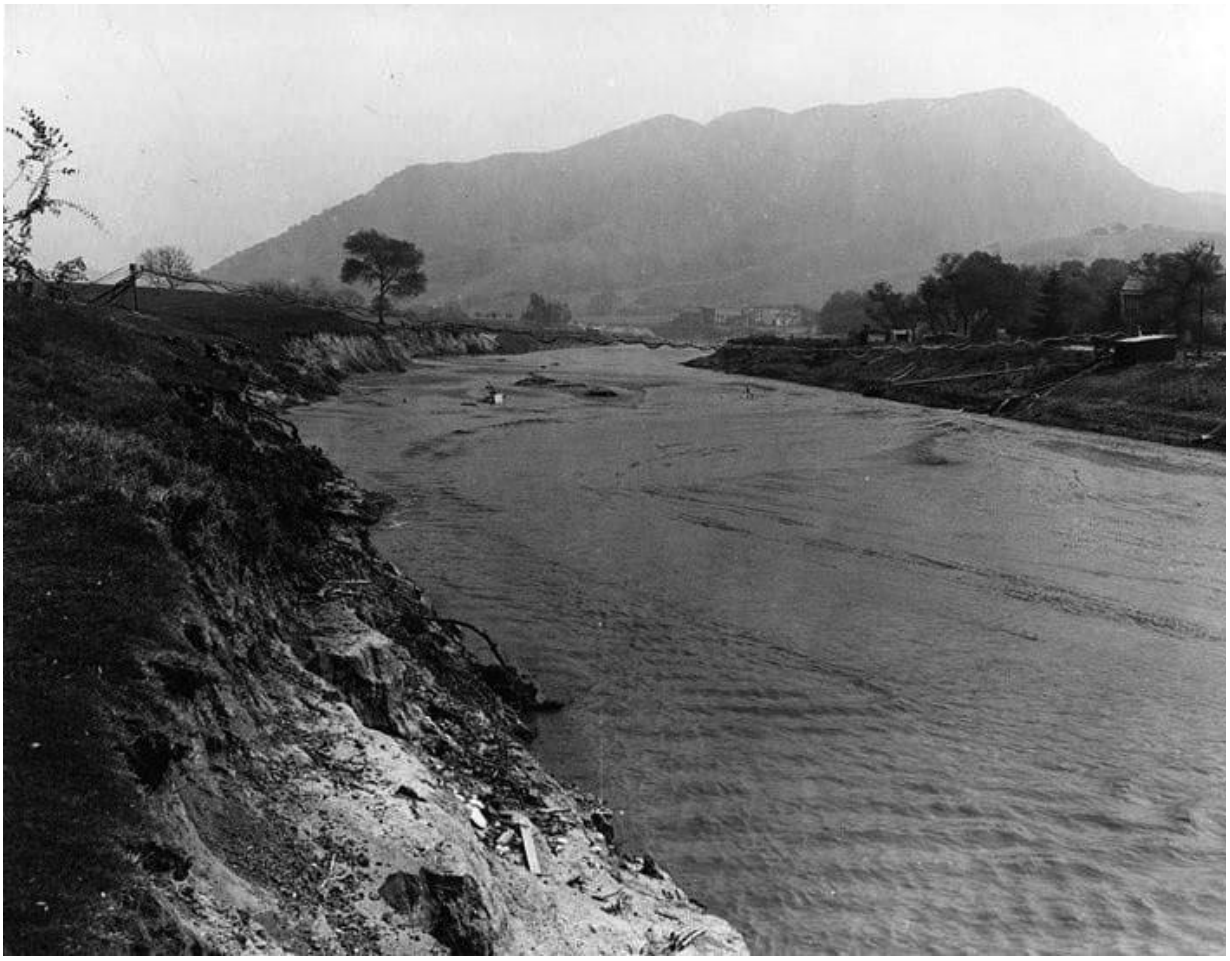
Although the 1938 flood caused the most damage of any flood in Los Angeles' history, the rainfall and river peaks were not even close to the Great Flood of 1862, the largest known flood by total volume of water. However, during the 1862 flood the region was much less populated than it was in 1938.

(1938) - View showing the Southern Pacific's first crossing washed out with two spans missing at the Dayton Avenue Bridge.



(1941) – Another major storm came in 1941 and the LA River was raging once again. It took out the truss bridge of Santa Fe's Pasadena Subdivision (then known as the Second District). Today this location is home to Metro's Gold Line between LA and Pasadena.

Channelization of the LA River



(1938) – Ground view showing embankment corrosion on the Los Angeles River in Studio City.

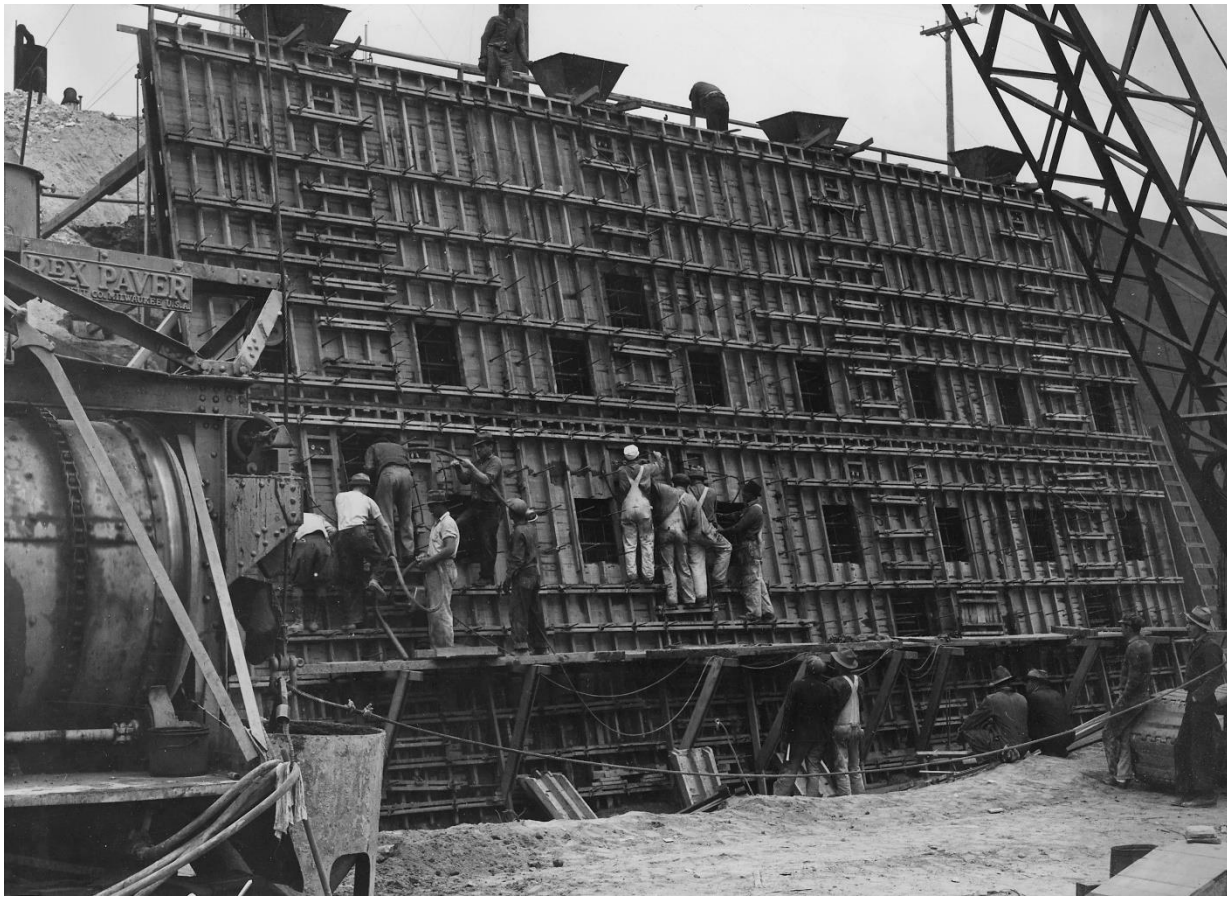
Historical Notes

After the great storm of 1938, due to public outcry, the Army Corps of Engineers began a 20-year project to create the permanent concrete channel which still contains most of the of riverbed today. They also installed a network of channels and flood basins to control the rampages of the waterways feeding the Los Angeles River.

(1949) - View showing the construction of the channel walls in the Los Angeles River at Laurel Canyon in Studio City.

Historical Notes

Since 1938, 278 miles of river and tributaries were retrofitted, and more than 300 bridges were built. With the river encased in cement, the natural sharp turns were now straightened. Any evidence of vegetation was completely removed, allowing runoff from the San Gabriel Mountains to escape through the river and out of Long Beach at up to 45 miles-per-hour. Streets and sewers were connected to drains along the river, designed to quickly capture and move rainfall away from the surrounding streets.



(1938)*^ – Los Angeles River Channelization. View showing the placing of concrete in a section of the counterforted channel wall of the Los Angeles River. The men on the form are vibrating the concrete through windows which are progressively closed as the level of the concrete rises.

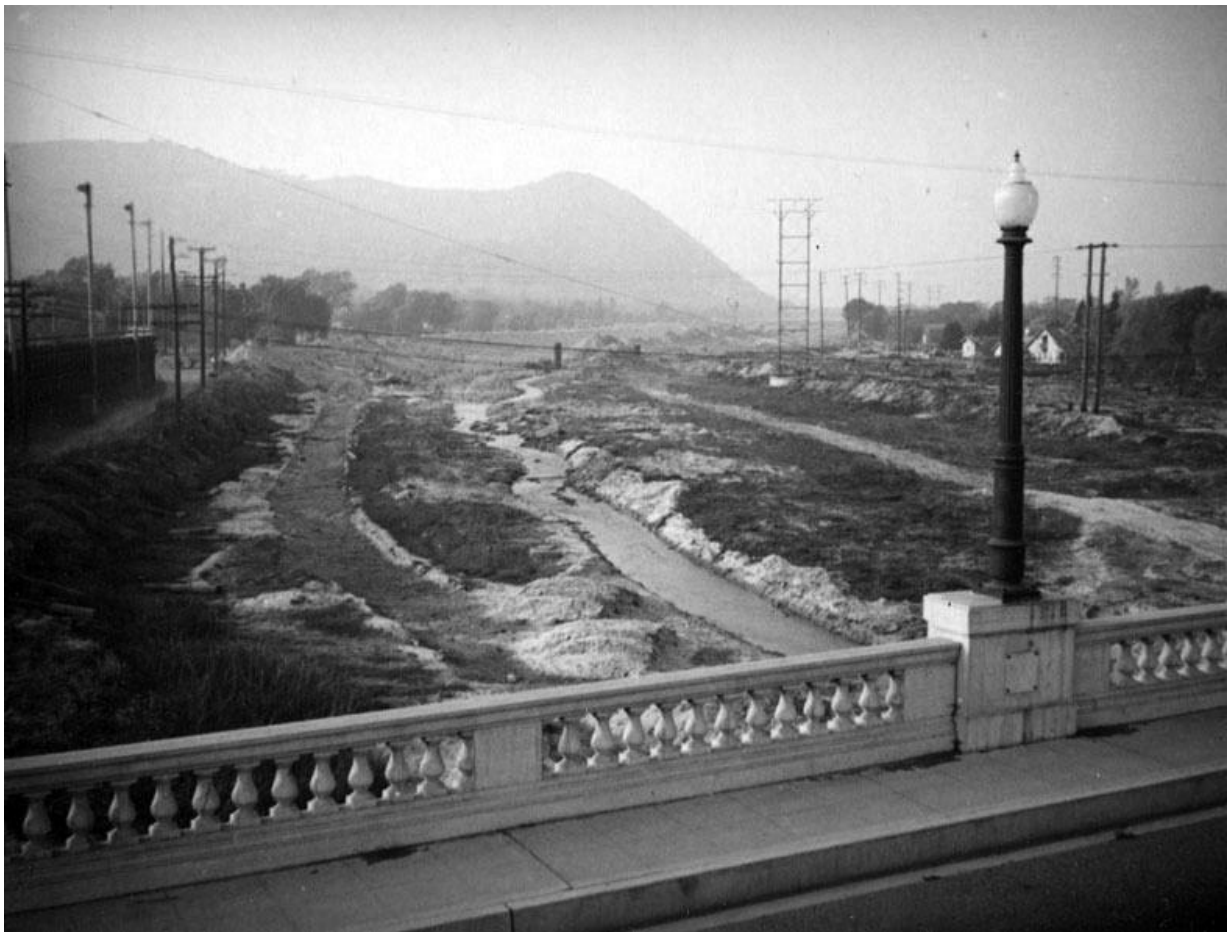
Before and After

(1937 vs. 2015)* - Before and After Los Angeles River Channelization in Studio City.

Historical Notes

"The Los Angeles River is small, but mean. People who don't know the truth of it make fun of our river; all they see is a tortured trickle that snakes along a concrete gutter like some junkie's vein. They don't know that we put the river in concrete to save ourselves; they don't know that the river is small because it's sleeping, and that every year and sometimes more it wakes. Before we put the river in that silly trough centered on a concrete plain at the bottom of those concrete walls, it flashed to life with the rain to wash away trees and houses and bridges, and cut its banks to breed new channels almost as if it was looking for people to kill. It found what it looked for too many times. Now, when it wakes, the river climbs those concrete walls so high that wet claws rake the freeways and bridges as it tries to pull down a passing car or someone caught out in the storm. Chain-link fences and barbed wire spine along the top of the walls to keep out people, but the walls keep in the river. The concrete is a prison. The prison works, most of the time." - *Robert Crais, The Last Detective*

Before and After



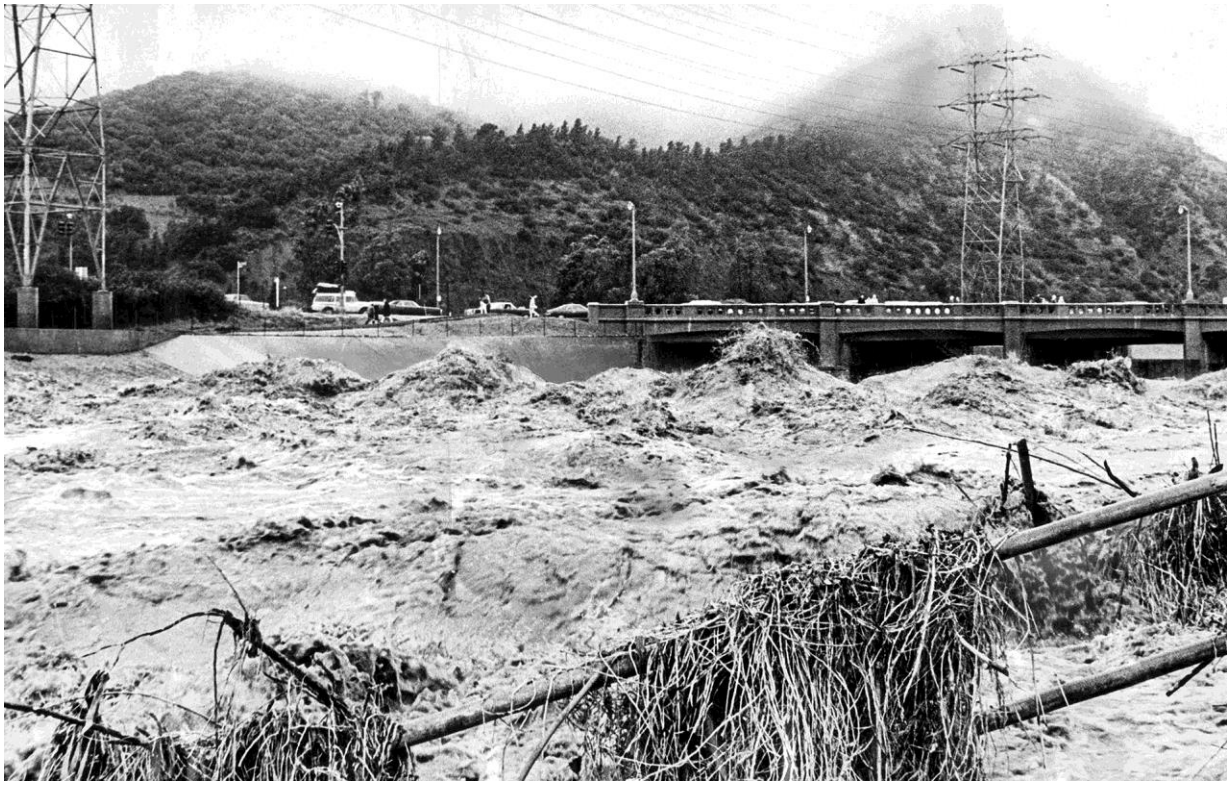
(1937 vs. 2015)* - Before and After Los Angeles River Channelization - View from the Glendale-Hyperion Bridge

(n.d.) - View looking north showing the Los Feliz Boulevard Bridge over the Los Angeles River near Griffith Park.

Historical Notes

The good news is that the introduction of the new flood control channels and concrete lining has alleviated most, but not all, of the flooding problems of the past.

The system successfully protected Los Angeles from massive flooding in 1969.



(1969)^# - Waves and rushing water fill the Los Angeles River at the Los Feliz Bridge during storm that dropped over five inches of rain. Griffith Park is in the background. Note: 1969 is considered a "weak" El Nino year.

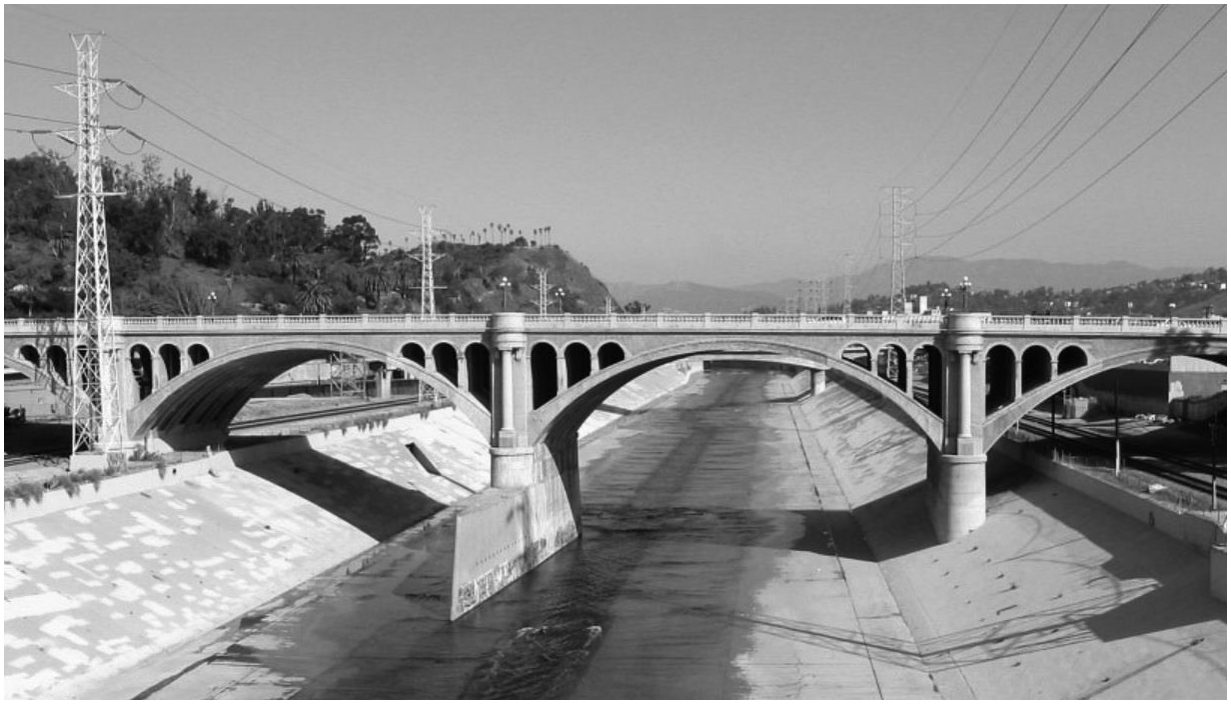
Historical Notes

Los Angeles Times Article dated Jan. 26, 1969:

The worst floods in 31 years hit Southern California as a double-barreled storm continued for the 8th straight day, leaving at least 82 persons dead, 2 missing and property damage estimated at more than $15 million.

At least 34 persons have been killed since the storm went into its second phase on Thursday–9 of them buried alive when mudslides invaded their homes–and whole communities were cut off by flood control waters.

Authorities in the area estimated more than 6,000 persons evacuated from danger areas as severe flooding hit cities from Fresno in the north to San Juan Capistrano in the south. … ^#



(2000)+* - Wide-angle view of the N. Broadway Bridge looking north shortly after it was retrofitted. The concrete-lined Los Angeles River is below as it appears throughout most of the year in semi-arid Southern California.

Historical Notes

The North Broadway Bridge underwent an 18 month, $20-million-dollar renovation and seismic retrofitting that was completed in 2000.

(2013) - View showing the Los Angeles River channelized with the 2nd Street Bridge seen in the background. Photo by Neil Kremer

Then and Now

(1969 vs 2023) - Waves and rushing water fill the Los Angeles River at the Los Feliz Bridge during major storms with Griffith Park in the background. Bottom photo was taken by Don Williams on January 9, 2023 around midnight.

Map showing the pathway of the Los Angeles River from its headwaters at the confluence of Bell Creek and Arroyo Calabasas to its outflow into the Pacific Ocean at Long Beach.
Click HERE to see the headwaters of the Los Angeles River. Map illustration: Clark Kohanek #^

Historical Notes

Today, the Los Angeles River is a 60-mile cement-lined flood channel leading from Canoga Park to the Long Beach Harbor.

Courtesy of Water and Power Associates

https://waterandpower.org/museum/Los_Angeles_River_The_Unpredictable!.html

References and Credits

* LA Public Library Image Archive

^ CSUN Oviatt Library Digital Archives

**LADWP Historic Archive

^^USC Digital Library

^*KCET: LA Flood of 1938: Cement the River's Future

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+#Facebook.com: Photos of Los Angeles

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+ US Corp of Engineers: The Los Angeles River